

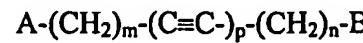
**In the Claims**

**Claim 1. (Currently Amended)** A method of imaging, measuring and displaying a 3-dimensional dose distribution of an energy field in a translucent 3-dimensional object comprising:

- (a) applying an energy field to the object such that the optical properties are changed upon receipt of the energy;
- (b) optically scanning the object at various positions and angles to provide a series of 2-dimensional representations of the object;
- (c) detecting the measuring light projection data indicative of optical changes in the object;
- (d) calibrating the optical change in the object transmitted through the object by x-rays to the dose of the energy corresponding to each position scan;
- (e) mapping the dose of the energy in the object transmitted through the object, and
- (f) visually recording the summation of said 2-dimensional representations on an image display receiver using said energy transmitted through the object comprising a radiation activated metal salt of a crystalline, thermochromic polyacetylene having a conjugated structure uniformly distributed in a rigid or high density semi-solid matrix by a color alteration due to polymerization of the activated polyacetylene to provide a permanent, 3-dimensional image of the object in high spatial resolution.

**Claims 2. – 7. (Cancelled)**

Claim 8. (Original) The method of claim 1 wherein said crystalline polyacetylene is a C<sub>2</sub> to C<sub>10</sub> radiochromic monomer having the formula:



wherein m and n each independently have a value of from 0 to 30; p has a value of 2 to 4; A and B each independently are R, OR<sub>1</sub>, OH, COOR<sub>2</sub>, CONR<sub>3</sub>R<sub>4</sub> or (CH<sub>2</sub>)<sub>r</sub>-O-CO-NR<sub>5</sub>R<sub>6</sub> or a metal salt of the acid or ester; and where R, R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub> and R<sub>6</sub> are each independently hydrogen or C<sub>1</sub> to C<sub>12</sub> alkyl or aryl and r has a value of from 1 to 4.

Claim 9. (Original) The method of claim 1 wherein the metal salt of the crystalline polyacetylene is a lithium salt.